

Patent Claims

1. A carbon fiber-reinforced coke, preferably needle coke, which was formed by common coking of the mixture
5 of a small proportion of cut carbon fibers and of viscose refinery residues or of coal tars and pitches, produced by
mixing the carbon fibers or stabilized precursor fibers for the formation of carbon fibers into the flow of the
10 incoming feedstock for the delayed coking process, in which the feedstock consists of the group of the highly aromatic residues of vacuum distillation, of visbreaking, of the fluidized catalytic cracking process, of thermocracking, of ethylene pyrolysis or
15 soft pitches produced from coal coking or by distillation of the highly aromatic coal residues, and by coking this mixture in a delayed coker corresponding to the prior art.
- 20 2. The carbon fiber-reinforced coke, preferably needle coke as claimed in claim 1, characterized in that the feedstock entering a delayed coker contains at most 4% by weight of cut carbon fibers or 8% by weight of stabilized precursor fibers for forming carbon
25 fibers.
3. The carbon fiber-reinforced coke, preferably needle coke as claimed in claims 1 and 2, characterized in that
30 the cut carbon fibers or stabilized precursor fibers for forming carbon fibers which enter a delayed coker are from 1 to 30 mm long.
4. The carbon fiber-reinforced coke, preferably
35 needle coke as claimed in one or more of claims 1 to 3, characterized in that
the cut, either surface-oxidized or non-surface-oxidized carbon fibers or stabilized

precursor fibers for forming carbon fibers which enter a delayed coker

- are not provided with a size,
- are provided with a size selected from the group
5 of sizes which are used to satisfy the objectives of various textile processes,
- are provided with a size selected from the groups consisting of
- waxes, in particular polyolefin waxes based on
10 polyethylene or polypropylene,
- montan waxes or waxes produced synthetically by esterification of fatty alcohols with long-chain fatty acids containing 12 to 40 carbon atoms,
- polyurethane, phenolic, polyester or epoxy resins,
15 or
- the low-viscosity pitches or pitches dissolved in organic solvents.

5. The carbon fiber-reinforced coke, preferably
20 needle coke, as claimed in one or more of claims 1 to 4, characterized in that this coke is calcined by means of a rotary tube calciner, a rotary plate calciner, a gas calciner or an electric calciner.

25 6. The carbon fiber-reinforced coke, preferably needle coke, as claimed in one or more of claims 1 to 5, characterized in that it contains less than 20% by weight of carbon fibers.

30 7. The carbon fiber-reinforced coke, preferably needle coke, as claimed in one or more of claims 1 to 6, characterized in that the coefficient of thermal expansion of the coke, measured on specimens produced in accordance with DIN 51930 in the extrusion direction
35 and in accordance with DIN 51909, has values of at most $0.15 \times 10^{-6} \text{K}^{-1}$.

8. The use of the carbon fiber-reinforced cokes, preferably needle cokes, as claimed in claims 1 to 7 in

polygranular amorphous or graphitized carbon bodies containing at least 70% by weight of carbon, specifically in carbon electrodes and in associated connection pieces (nipples), in fine-grain graphites
5 and reactor graphites, in blast-furnace bricks or in cathodes and anodes for aluminum fused-salt electrolysis.